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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHAWLA, JYOTI	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/525,892	NAVARRO ET AL.	
	Examiner	Art Unit	
	Jyoti Chawla	1761	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4,16,17,19 and 21-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,16,17,19 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on September 20, 2007 have been entered. Claims 4 and 17 have been amended and claims 5, 7, 11 and 20 have been cancelled. Claims 4, 16, 17, 19 and 21-24 are pending and examined in the application.

Claim Objections

Objection to Claims 4 and 17, stated in the office action dated March 2007 regarding the correction of the term "gravity" to "specific gravity" have been withdrawn in light of applicant's amendments.

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4, 16, 17, 19, 21-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 17 steps (b) state "aerating the yeast suspension ...oxygen uptake by yeast required for sterol and unsaturated fatty acid synthesis", which is indefinite as it is unclear as to what is being stated, is the yeast required for sterol synthesis or the oxygen required for sterol synthesis or something else. Further it is not clear as to what function is being performed by the sterol and the fatty acid in the fermentation process. Clarification and/or correction is required.

Claim 17 is also indefinite for the recitation of step (e) that states "monitoring the wort for end of fermentation", as it is unclear as to what is encompassed by end of

fermentation, does it include removal of yeast or death of all yeast or some other way of ending the fermentation. Clarification and/or correction is required

Claim Rejections - 35 USC § 103

Claims 4, 16, 17, 19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quain (GB 2197341 A) in view of Handbook of Brewing further in view of applicant' own admission (Pages 1-4).

Regarding claims 4 and 17 steps (a), (b), (d) and (e), Quain teaches a method for brewing beer which includes a method of enhancing yeast fermentation of wort by suspending yeast in a wort-free aqueous solution comprising liquid adjunct (Page 1, lines 26-31 and 43-44; Page 2, line 18 to page 3, line 40); and aerating the suspension for a period of time with a gas comprising oxygen to allow oxygen uptake by the yeast required for sterol and unsaturated fatty acid synthesis (Page 1, lines 13-15 and lines 41-42). Quain also teaches transferring the yeast when it reaches maximum oxygenation (Page 2, lines 1-10 and Page 3, lines 40-60) and then fermenting under suitable fermentation conditions to produce beer (Page 3, lines 60-65). Since Quain teaches aqueous solution containing yeast to be aerated, the solution taught by Quain inherently contains nutrients to keep the yeast alive and take up oxygen. An "adjunct" is broadly defined as something that is added, therefore, aqueous solution containing nutrients as taught by Quain would constitute as liquid adjunct.

Quain is silent regarding the gravity for aeration and pitching however, Handbook of Brewing teaches that in order to reduce the lag time and have a rapid start to the fermentation yeast is pitched at a rate between 5-20 million cells/ml (Page 195, Para 3), i.e., 5-20 degrees Plato, which falls in the recited range of the applicant. Thus specific gravity in the range of 5-20 degrees Plato (i.e., in the instantly claimed range) was known to be optimal for the pitching yeast at the time of the invention. Therefore, it would have been obvious to one with ordinary skill in the art at the time of invention to aerate the yeast in a solution that has the specific gravity value comparable to the one used for pitching as taught by the Handbook of Brewing in order to regulate the fermentation process by letting the yeast have an environment with consistent specific

gravity from the aerating medium to the fermentation medium, thus increasing the chance of the yeast to grow and ferment at an optimal level upon transfer to the wort. One would have been further motivated to do so in order to make the fermented product more consistently in lesser amount of time.

Quain is also silent regarding the addition of cereal sugars to the yeast suspension as recited in claims 4 and 17. However Handbook of brewing teaches that among the nutritional requirements of brewer's yeast, the carbohydrate requirement involves use of sugars like sucrose, glucose (dextrose) and fructose (fruit sugar), maltose and maltotriose. It is known that maltose and maltotriose are examples of sugars that pass intact across the cell membrane of yeast, and are thus easily absorbed. It is also known that maltose and maltotriose (malted sugars) are the major sugars in the brewer's wort. According to the Handbook of brewing, ability of brewer's yeast to absorb and metabolize maltose and maltotriose is essential to the determination brewer's yeast's quality (Page 182, Part C, also see pages 183 and 184). Further, the assessment of brewer's yeast's ability to metabolize sugars, such as glucose, maltose and maltotriose, would be a matter of routine determination for one of ordinary skill in the art. It is important for one of ordinary skill in the art to determine the ability of brewer's yeast to metabolize sugars, such as maltose, maltotriose etc., because the quality of yeast determines the optimal amount of brewer's yeast required for fermentation of a particular amount of wort in order to make a consistent fermented product in a consistent manner. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to add the sugars, such as glucose (dextrose), maltose and maltotriose to the oxygenating aqueous solution, in order to get a feedback about the quality or genetic makeup of the yeast while also oxygenating the yeast at the same time. Further, it is noted that the addition of sugars to the aqueous suspension as taught by Quain would also help in modifying the specific gravity of the aerating medium as discussed above.

Regarding the addition of zinc to the yeast suspension or the adjunct liquid as recited in step (c) of claims 4 and 17, applicants admit that the prior art has added zinc to yeast fermentations to enhance fermentation rate (Top of page 3 of the specification). Further, the Handbook of Brewing teaches that addition of zinc to water that is used in brewing processes was known. Proprietary blended yeast foods containing zinc are used in brewing as aids to reduce problems and have a more consistent fermentation (Pages 216-217). Zinc plays an important role in the protein synthesis and yeast growth and also reduces toxicity of cadmium (Page 143). Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention to add zinc as part of the nutrient component in the aqueous suspension for the aeration of yeast in order to enhance the fermentation ability of the yeast when it is later pitched into the fermentation medium. One of ordinary skill would have been motivated to add zinc along with other nutrients into the aeration medium in order to let the yeast obtain the beneficial effects of zinc and as a result have enhanced fermentation ability upon pitching. One would have been further motivated to do so in order to have faster and more consistent rate of fermentation thereby reducing the time of the overall beer making process, which is also the intent of the applicant.

Regarding the addition of yeast to a suitable volume of non-aerated wort as recited in steps (d) of claims 4 and 17, the wort taught by Quain is oxygen-free wort, i.e., non-aerated wort (Page 1, lines 32-35).

Regarding claim 16, Quain teaches that the gas is delivered above a maximum oxygen uptake rate of the yeast (Page 1, lines 36-48).

Claim 17 recites a method for fermenting wort wherein steps (a)-(e) have the same limitations as recited in steps (a)-(e) of claim 4, thus claim 17 steps (a)-(e) are rejected for the same reasons as steps (a)-(e) of claim 4.
Regarding claim 17 (f), Quain teaches monitoring the wort for an end of fermentation, wherein the end of fermentation is reached in a shorter time than a fermentation method

wherein aerated wort is pitched with non-aerated yeast slurry (Page 1, lines 21-31). Also see the rejection under 35 USC 112(second paragraph).

Regarding claim 19, Quain teaches using brewer's yeast (Page 1, line 50), as instantly claimed.

Regarding claims 21 and 22, Quain teaches suspending yeast in an aqueous medium to oxygenate however is silent regarding the use of maltose, maltotriose and glucose (dextrose) in the adjunct. because it is well known in the art of brewing that wort contains malted grain, thus has maltose and maltotriose. Quain is silent regarding the addition of cereal sugars to the yeast suspension as recited in claims 21 and 22. However, Handbook of brewing teaches that among the nutritional requirements of brewer's yeast, the carbohydrate requirement involves use of sugars like sucrose, glucose (dextrose) and fructose (fruit sugar), maltose and maltotriose. It is known that maltose and maltotriose are examples of sugars that pass intact across the cell membrane of yeast, and are thus easily absorbed. It is also known that maltose and maltotriose (malted sugars) are the major sugars in the brewer's wort. According to the Handbook of brewing, ability of brewer's yeast to absorb and metabolize maltose and maltotriose is essential to the determination brewer's yeast's quality (Page 182, Part C, also see pages 183 and 184). Further, the assessment of brewer's yeast's ability to metabolize sugars, such as glucose, maltose and maltotriose, would be a matter of routine determination for one of ordinary skill in the art. It is important for one of ordinary skill in the art to determine the ability of brewer's yeast to metabolize sugars, such as maltose, maltotriose etc., because the quality of yeast determines the optimal amount of brewer's yeast required for fermentation of a particular amount of wort in order to make a consistent fermented product in a consistent manner. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to add the sugars, such as glucose, maltose and maltotriose to the oxygenating aqueous solution, in order to get a feedback about the quality or genetic makeup of the yeast while also oxygenating the yeast at the same time.

The limitations recited in claims 23 and 24 are the same as the limitations of claims 21 and 22, thus claims 23 and 24 are rejected for the same reasons as claims 21 and 22 above.

Response to Arguments

Applicant's arguments, filed September 20, 2007 have been fully considered, however have not been found persuasive.

I) Regarding applicant's arguments about Quain not teaching "liquid adjunct" as recited in claims 4 and 17(Remarks, page 4), applicant is referred to Quain pages 1 and 2 where the reference teaches of adding yeast to an aqueous suspension, i.e., liquid and as discussed in the previous office action "adjunct" is defined as something that is added, thus by definition an aqueous suspension as taught by Quain is a liquid adjunct, as instantly claimed, absent any clear and convincing evidence or arguments to the contrary.

II) Regarding the argument that the references do not teach the transfer of aerated yeast to a suitable volume of non-aerated wort (Remarks, page 4), the applicant is referred to the office actions and Quain reference, where on lines 34-35, Quain teaches of pitching the oxygenated/aerated yeast to a oxygen-free wort (non-aerated wort) as instantly claimed. Thus applicant's argument has not been found persuasive.

III) Applicant's argument that Quain does not teach the specific gravity of the aqueous suspension or liquid adjunct (Remarks, page 5, and paragraph 1) in an obviousness rejection is not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ.375 (Fed. Cir. 1986).

IV) Applicant's argument that Quain does not show the addition of maltose and maltotriose and there is no motivation to combine the references (Remarks, page 5, paragraph 2) used in the obviousness rejection the examiner recognizes that

obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In the instant case, applicant's remarks are not persuasive because it is well known in the art of brewing that wort contains malted grain, thus has maltose and maltotriose. Quain is silent regarding the addition of cereal sugars to the yeast suspension as recited in claims 4 and 17. However Handbook of brewing teaches that among the nutritional requirements of brewer's yeast, the carbohydrate requirement involves use of sugars like sucrose, glucose (dextrose) and fructose (fruit sugar), maltose and maltotriose. It is known that maltose and maltotriose are examples of sugars that pass intact across the cell membrane of yeast, and are thus easily absorbed. It is also known that maltose and maltotriose (malted sugars) are the major sugars in the brewer's wort. According to the Handbook of brewing, ability of brewer's yeast to absorb and metabolize maltose and maltotriose is essential to the determination brewer's yeast's quality (Page 182, Part C, also see pages 183 and 184). Further, the assessment of brewer's yeast's ability to metabolize sugars, such as glucose, maltose and maltotriose, would be a matter of routine determination for one of ordinary skill in the art. It is important for one of ordinary skill in the art to determine the ability of brewer's yeast to metabolize sugars, such as maltose, maltotriose etc., because the quality of yeast determines the optimal amount of brewer's yeast required for fermentation of a particular amount of wort in order to make a consistent fermented product in a consistent manner. Therefore, one of ordinary skill in the art at the time of the invention would have been motivated to add the sugars, such as glucose, maltose and maltotriose to the oxygenating aqueous solution, in order to get a feedback about the quality or genetic makeup of the yeast along with the oxygenation of yeast. Thus applicant's argument is not persuasive, absent any clear and convincing evidence and/or arguments to the contrary.

V) Applicant's argument regarding the addition of zinc has also been considered and not found persuasive. Applicant is referred to the rejection above.

VI) Regarding the combination of Quain and Handbook of Brewing regarding claims 4 and 17, applicant is referred to the response above. Furthermore, in response to applicant's argument that invention is not obvious over the combination of Quain, Handbook and applicant 's own admission, the applicant is referred that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Thus applicant's arguments have been fully considered and have not been found persuasive and claims 4, 16, 17, 19, 21-24 are rejected for reasons of record.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jyoti Chawla whose telephone number is (571) 272-8212. The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jyoti Chawla
Examiner
Art Unit 1761

KEITH HENDRICKS
PRIMARY EXAMINER